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Remarks

Thorough examination by the Examiner is noted and appreciated.

The claims have been amended to overcome Examiner rejections and to further clarify Applicants invention to clearly define over the prior art. No new matter has been added.

Support for the amendments is found in the previously presented claims, the Figures and the Specification:

[0028] According to the present invention, a feedback system may be employed to provide real-time, dynamic control of the spatial distribution of the plasma generated within the chamber 30. This control is carried out by monitoring the plasma density, as by means of an appropriate sensor 39 at each of a plurality of locations within the chamber 30, or by monitoring the effects of processing, such as etch rates at each of a plurality of locations on the wafer 12. This dynamic information is fed back on line 43 to the controller 40 which then assesses the need to make changes in the spatial distribution of the plasma, and if any changes are necessary, adjust the tuning of the capacitor 50, 52, 54 so as to alter the RF electric field in a manner that effects a corresponding change in the spatial distribution of the plasma density.

Claim Rejections under 35 USC 112

1. Claims 1-2, 4, 7, 9, 21-22, 24-28 and 31-38 stand rejected

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under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. Examiner asserts the limitation in **bold type** below violates the written description requirement:

e.g., claim 1:

"(c) separately controlling the second RF power delivered to each of the electrode zones **so as to produce a desired spatial distribution of said second RF power across said process wafer face in response to determining a deposition and/or etch rate of said plasma over said process wafer face**, said desired spatial distribution of said RF power selected to achieve a uniform deposition and/or etch rate over said entire surface of said process wafer"

Examiner, without making a rejection under the enablement requirement, then argues that "the specification does not provide an enabling disclosure for measuring a spatial etch rate or spatial deposition rate to enable corresponding spatial RF power to compensate for non-uniformity. To the extent the limitation points to real-time feed back control of spatial processing, the measurement must be spatial in real-time. It is not clear how etch rate and deposition rate are measured by the claimed invention."

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Applicants point out that they do not claim "measuring" an etch rate but rather **determining a deposition and/or etch rate.**

Applicants reproduce the follow portions of Applicants disclosure:

[0007] When processing semiconductor wafers using a plasma, it is normally desirable to achieve uniform processing over the entire surface of the wafer. Unfortunately, however, the density distribution of the plasma is often not uniform over the wafer, but instead varies as a result of a number of factors, such as non uniform heating of the wafer, variations in the physical geometry of the chamber **which in turn affects distribution of the plasma within the chamber, and variations in the electrical field producing the plasma due to non-uniformity of the RF bias potential over the face of the wafer.** As a result of such variations, deposition and/or etch rates vary over the wafer in a **manner that may not always be predicted,** and where predictable, require that additional measures be taken to compensate for the variations.

[0028] According to the present invention, **a feedback system may be employed to provide real-time, dynamic control of the spatial distribution of the plasma generated within the chamber 30.** This control is carried out by monitoring the plasma density, as by means of an appropriate sensor 39 at each of a plurality of locations within the chamber 30, **or by monitoring the effects of processing, such as etch rates at each of a plurality of locations on the wafer 12.** This dynamic information is fed back on line 43 to the controller 40 which then assesses the need to make changes in the spatial distribution of the plasma, and if any changes are necessary, adjust the tuning of the capacitor 50, 52, 54 so as to alter the RF electric field in a manner that effects a corresponding change in the spatial distribution of the plasma density.

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Thus, it is clear that Applicants have **explicit** support in the Specification for the claim language "**so as to produce a desired spatial distribution of said second RF power across said process wafer face in response to determining a deposition and/or etch rate of said plasma over said process wafer face**" by the **explicit** disclosure of Applicants including "**monitoring the effects of processing, such as etch rates at each of a plurality of locations on the wafer**".

Examiner has not explained how or why one of ordinary skill in the art would not understand that Applicants **explicit** description of "**monitoring the effects of processing, such as etch rates**" support the claim language "**determining a deposition and/or etch rate of said plasma**". It is clear that one of ordinary skill would understand that **monitoring** includes the act of **determining**.

Applicants respectfully refer Examiner to the following relevant portions of the MPEP and the case law:

ADEQUACY OF WRITTEN DESCRIPTION

A. Read and Analyze the Specification for Compliance with 35 U.S.C. 112, para. 1

Office personnel should adhere to the following procedures when reviewing patent applications for compliance with the written description requirement

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of 35 U.S.C. 112, para. 1. The examiner has the initial burden, after a thorough reading and evaluation of the content of the application, of presenting evidence or reasons why a person skilled in the art would not recognize that the written description of the invention provides support for the claims. There is a strong presumption that an adequate written description of the claimed invention is present in the specification as filed, *Wertheim*, 541 F.2d at 262, 191 USPQ; however, with respect to newly added or claims, applicant should show support in the disclosure for the new or amended claims.

“[I]n considering the disclosure of a reference, it is proper to take into account not only specific teachings of the reference but also the inferences which one skilled in the art would reasonably be expected to draw therefrom.” *In re Preda*, 401 F.2d 825, 826, 159 USPQ 342, 344 (CCPA 1968)

It is now well accepted that a satisfactory description may be in the claims or any other portion of the originally filed specification.

See MPEP, 8th Ed, Section 2163 (I)

While there is **no *in haec verba* requirement**, newly added claim limitations must be supported in the specification through **express, implicit, or inherent disclosure**.

See MPEP, 8th Ed, Section 2163 (I) (B)

The fundamental factual inquiry is whether the specification conveys with reasonable clarity to those skilled in the art that, as of the filing date sought, applicant was in possession of the invention as now claimed. See, e.g., *Vas-Cath, Inc.*, 935 F.2d at 1563-64, 19 USPQ2d at 1117.

An adequate written description

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of the invention may be shown by any description of sufficient, relevant, identifying characteristics so long as a person skilled in the art would recognize that the inventor had possession of the claimed invention. See, e.g., *Purdue Pharma L.P. v. Faulding Inc.*, 230 F.3d 1320, 1323, 56 USPQ2d 1481, 1483 (Fed. Cir. 2000).

Applicants respectfully contend that one of ordinary skill would clearly understand that Applicants **explicit** description of **monitoring** processing effects such as deposition rates and/or etch rates includes "**determining a deposition and/or etch rate of said plasma**".

Although Examiner has not made a rejection under the enablement requirement, Examiner has stated that Applicants have "not provided an enabling disclosure for measuring a spatial etch rate". Applicants point out that Examiner has not explained how or why one of ordinary skill would have to engage in **undue experimentation to determine or monitor** etch rates and/or deposition rates, as Applicants have explicitly disclosed and claimed.

Applicants respectfully refer Examiner to portions of the MPEP relating to the **enablement requirement**:

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2164 The Enablement Requirement

The enablement requirement refers to the requirement of 35 U.S.C. 112, first paragraph that the specification describe how to make and how to use the invention. The invention that one skilled in the art must be enabled to make and use is that defined by the claim(s) of the particular application or patent.

The purpose of the requirement that the specification describe the invention in such terms that one skilled in the art can make and use the claimed invention is to ensure that the invention is communicated to the interested public in a meaningful way. The information contained in the disclosure of an application must be sufficient to inform those skilled in the relevant art how to both make and use the claimed invention.

Detailed procedures for making and using the invention may not be necessary if the description of the invention itself is sufficient to permit those skilled in the art to make and use the invention. A patent claim is invalid if it is not supported by an enabling disclosure.

2164.01 Test of Enablement

Any analysis of whether a particular claim is supported by the disclosure in an application requires a determination of whether that disclosure, when filed, contained sufficient information regarding the subject matter of the claims as to enable one skilled in the pertinent art to make and use the claimed invention.

The standard for determining whether the specification meets the enablement requirement was cast in the Supreme Court decision of *Mineral Separation v. Hyde*, 242 U.S. 261, 270 (1916) which postured the question: **is the experimentation needed to practice the invention undue or unreasonable?** That standard

is still the one to be applied. *In re Wands*, 858 F.2d 731, 737, 8 USPQ2d 1400, 1404 (Fed. Cir. 1988).

Accordingly, even though the statute does not use the term "undue experimentation," it has been interpreted to require that the claimed invention be enabled so that any person skilled in the art can make and use the invention without undue experimentation. *In re Wands*, 858 F.2d at 737, 8 USPQ2d at 1404 (Fed. Cir. 1988). See also *United States v. Telectronics, Inc.*,

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857 F.2d 778, 785, 8 USPQ2d 1217, 1223 (Fed. Cir. 1988) ("The test of enablement is whether one reasonably skilled in the art could make or use the invention from the disclosures in the patent coupled with information known in the art without undue experimentation.").

A patent need not teach, and preferably omits, what is well known in the art. *In re Buchner*, 929 F.2d 660, 661, 18 USPQ2d 1331, 1332 (Fed. Cir. 1991); *Hybritech, Inc. v. Monoclonal Antibodies, Inc.*, 802 F.2d 1367, 1384, 231 USPQ 81, 94 (Fed. Cir. 1986), *cert. denied*, 480 U.S. 947 (1987); and *Lindemann Maschinenfabrik GMBH v. American Hoist & Derrick Co.*, 730 F.2d 1452, 1463, 221 USPQ 481, 489 (Fed. Cir. 1984). Determining enablement is a question of law based on underlying factual findings. *In re Vaeck*, 947 F.2d 488, 495, 20 USPQ2d 1438, 1444 (Fed. Cir. 1991); *Atlas Powder Co. v. E.I. du Pont de Nemours & Co.*, 750 F.2d 1569, 1576, 224 USPQ 409, 413 (Fed. Cir. 1984).

2164.01(a) Undue Experimentation Factors

There are many factors to be considered when determining whether there is sufficient evidence to support a determination that a disclosure does not satisfy the enablement requirement and whether any necessary experimentation is "undue." These factors include, but are not limited to:

- (A) The breadth of the claims;
- (B) The nature of the invention;
- (C) The state of the prior art;
- (D) The level of one of ordinary skill;
- (E) The level of predictability in the art;
- (F) The amount of direction provided by the inventor;
- (G) The existence of working examples; and
- (H) The quantity of experimentation needed to make or use the invention based on the content of the disclosure.

It is improper to conclude that a disclosure is not

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enabling based on an analysis of only one of the above factors while ignoring one or more of the others. The examiner's analysis must consider all the evidence related to each of these factors, and any conclusion of nonenablement must be based on the evidence as a whole. 858 F.2d at 737, 740, 8 USPQ2d at 1404, 1407.

A conclusion of lack of enablement means that, based on the evidence regarding each of the above factors, the specification, at the time the application was filed, would not have taught one skilled in the art how to make and/or use the full scope of the claimed invention without undue experimentation. *In re Wright*, 999 F.2d 1557,1562, 27 USPQ2d 1510, 1513 (Fed. Cir. 1993).

Thus, Examiner, has clearly not explained why one of ordinary skill in the art could not **monitor or determine** etch rates and/or deposition rates **without undue experimentation**.

While Examiner is clearly mistaken, and has not made out a *prima facie* case, that Applicants claim language either violates the written description requirement, the enablement requirement, or is new matter, Applicants have nevertheless, amended their claims to more closely track the **explicit** disclosure of Applicants to clearly overcome Examiner rejection to further prosecution on the merits.

Examiner additionally states that the limitation of the

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electrostatic chuck being **monopolar** in claims 37 and 38 is also new matter. Examiner refers to paragraph 03 "where Applicants describe an ESC comprising two electrodes powered by a voltage difference"". Examiner therefore ignores clear disclosure made by Applicants:

[0004] In a so called **unipolar** ESC, a voltage is applied across the dielectric material separating the metallic electrode from the wafer. In such case, the **wafer acts as the second electrode**, which, along with the dielectric and a metallic electrode, forms a parallel capacitor. The attractive force created by the difference in potential of the charges on the two electrodes clamps the wafer to the ESC.

[0005] In **bipolar** ESCs, the **wafer does not serve as a electrode**. Instead, a voltage difference is applied across two other electrodes spaced apart from each other and separated from the wafer by one or more layers of dielectric insulators or semiconductor material. The voltage differences induces charges on the backside of the wafer, thus attracting the wafer to the ESC.

[0006] In **both unipolar and bipolar ESCs**, the plasma is created by applying a high voltage RF signal to the electrostatic chuck. As a result, a bias voltage, typically on the order of several hundred volts, develops on the wafer.

Thus, Examiner has not explained how or why "monopolar" is new matter when it is clear to one of ordinary skill in the art that the term 'unipolar' ESC is equivalent to "monopole" ESC or "monopolar" ESC. Apparently, Examiner would erroneously require exact correspondence of the terms i.e, erroneously impose an **in haec verba** requirement. Applicants reiterate portions of the

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MPEP:

While there is *no in haec verba* requirement, newly added claim limitations must be supported in the specification through **express, implicit, or inherent disclosure**.

Thus, while Applicants have provided **explicit** support for the term 'monopolar' ESC, as one of ordinary skill in the art would clearly recognize, Applicants have nevertheless amended their claims to **more explicitly** correspond with Applicants disclosure to clearly overcome Examiners rejection to further prosecution on the merits.

Claim Rejections under 35 USC 103

1. Claims 1-2, 4, 7, 9, 21, 22, 24-28, and 31-38 stand rejected under 35 USC 103(a) as being unpatentable over Dible et al. (US 6,239,403) in view of Liu et al. (US 2003/0038112).

Dible et al. discloses a power segmented electrode for use as **an upper electrode and/or substrate support** (see Abstract) which is individually supplied with RF power to provide for uniform processing of a substrate (see Abstract). In one embodiment (upper electrode embodiment), Dible et al. discloses a segmented electrode and an **active mechanism (active capacitive**

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network) to control power delivered to different zones of the segmented electrode including a **capacitive network** for distributing power to a plurality of electrodes which may be segmented into concentric annular rings (see Figure 5, col 3, lines 30-49;; col 4, lines 54-61; col 6, lines 13-24—see also particularly col 2, lines 33-48 and especially lines 45-46).

Dible et al. **do not disclose** that the embodiment with a capacitive network (Figure 5) **is incorporated into an electrostatic chuck**, but rather discloses that in this embodiment, the current sensing mechanisms (sensing current through variable capacitors) is provided for automatically adjusting the variable capacitors by a feedback loop between the current sensors and the variable capacitors to control the **percentage of power** sent to the electrodes (col 6, lines 13-24) to compensate for deviations from uniformity of **processing the substrate in an annular zone of the substrate facing a respective one of the annular electrodes** (col 2, lines 41-47). That is, this embodiment **is disclosed to be an upper electrode (not a substrate support)** i.e., Dible et al. do not disclose "said separate electrode zones comprising an electrostatic chuck."

In embodiments that **operate by a different principle of**

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operation, Dible et al. (Figure 1a and Figure 2) disclose a passive network system that is incorporated into a **bipolar electrostatic chuck** (Figure 1a) (col 5, lines 16-24) and may use a **DC bias** to provide for electrostatic clamping (Figure 2; col 5, lines 49-51) and which includes a **passive RF power splitter** (26; Figure 2) for delivering power to different segments of the segmented electrode (col 5, lines 37-57).

Dible et al. **further discloses that** two variable capacitors may be used to supply RF power to each pole (**bipolar chuck**) of an ESC wafer clamping system (Figure 6; col 6, line 23-29) where the first electrode (8) is separate from the **chuck which acts as a second electrode (6) in a bipolar chuck** (see Figure 1a)). Please note that the variable capacitors used to deliver RF power to the ESC are not part of the active capacitive network/upper electrode of Dibble et al.

Examiner argues that the above argument is not understood since "Dible et al. does disclose support electrode comprising electrostatic chuck electrode segments."

Thus, Examiner is confusing two different and separate embodiments in Dible et al., nowhere disclosed to be operative together i.e., the upper electrode **active network** of Dible et al.

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which includes **variable capacitors and a feedback loop** (figure 5) to deliver power to the electrodes and the **passive network** of Dible et al. which includes a **bipolar ESC** (Figures 1a and Figure 2) and uses a **passive RF power splitter** to deliver power to the electrodes. That is an active network including variable capacitors **works by a different principle of operation** than a **passive network using an RF power splitter**.

The fact that Dibble further discloses that variable capacitors (**not part** of the active capacitive network including an upper electrode and a feedback loop) **to supply RF power to each pole (bipolar chuck)** of an ESC wafer clamping system (Figure 6; col 6, line 23-29) **does not** disclose Applicants invention including a **matching network delivering RF power through variable capacitors to separate electrode zones comprising an electrostatic chuck** where the RF power is controlled based on fed-back information comprising real-time monitoring of a deposition and/or etch rate"

Thus Dible fails to disclose several elements of Applicants invention, including those elements in **bold type**:

"A method of **controlling the spatial distribution of RF power** used to generate a plasma for processing a semiconductor

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device process wafer to achieve a **uniform deposition and/or etch rate** over an entire face of said process wafer, comprising the steps of:

(a) producing RF power from **first and second RF power generators comprising a dual frequency system**, said first RF power delivered to a first electrode positioned above and spaced apart from a second electrode;

(b) **delivering said second RF power** to each of a plurality of separate electrode zones according to a matching network, said separate electrode zones comprising said second electrode, said second RF power individually deliverable in parallel from said matching network to separate electrode zones at a selected RF power level **through a plurality of variable capacitors**, each of said variable capacitors associated with one of said electrode zones, said separate electrode zones comprising an electrostatic chuck; and

(c) **separately controlling the second RF power** delivered to each of the electrode zones so as to produce a desired spatial distribution of said second RF power across said process wafer face **in response to fed-back information comprising real-time monitoring of a deposition and/or etch rate** over said process

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wafer face, said desired spatial distribution of said RF power selected to achieve a uniform deposition and/or etch rate over said entire surface of said process wafer."

In contrast, Liu et al. disclose In a RF power supply scheme that operates by a different principle of operation than the active capacitor network of Dible et al., a method for optically monitoring the integrated power spectra by optical sensors (176; Figure 1; paragraph 0048) located in an upper electrode (60) over selected areas of a process wafer(50), where the upper electrode is segmented (Figure 2A) and where each segment of the electrode is supplied by a separate RF power supply (82; Figure 2b, 2C) each RF power supply controllable to alter the RF power of an individual electrode segment (see Abstract). Liu teach that each RF power supply is controllable to adjust the RF power level of a plasma based on differences in an integrated power spectra from a predetermined value (paragraph 0018). Liu et al. disclose monitoring the power spectrum over portions of the wafer face (see Figure 9; paragraph 0071) and teach that the magnitude of the total power spectrum should be the same over monitored portions of the wafer (Pa-Pc; Figure 9).

The RF power from each of the separate RF power supplies is adjusted to each of a corresponding electrode segment to adjust

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the magnitude of the total power spectrum to a predetermined value. Liu et al. teach that in achieving overall plasma processing uniformity in **endpoint detection in an etching process** may include predetermined application of **different RF power levels to the overhead electrode** as well as in-situ adjustment of **individual power supplies to each of the electrode segments** based on comparison to a predetermined level of a magnitude of the **power spectrum of the plasma** (paragraphs 0081 and 0082).

Thus, both Dible et al. and Liu et al. teach a method of controlling RF power to individual **upper electrode segments** (Dible et al. by an **active capacitor network system** and Liu et al. by **controlling separate RF power supplies**).

Examiner erroneously argues that "even though in Liu et al., upper electrodes are segmented, this teaching properly applies to Dible et al. since the effect is the same. That is why in Dibble et al. there is no significance given to which electrode, upper or lower is segmented".

Examiner is clearly mistaken; Rather, Dible et al. disclose an **active capacitive network** that provides power to an upper segmented electrode and disclose a **passive network that is provided RF power by a RF power splitter as a lower electrode**

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that further functions as a bipolar ESC, whereas Liu et al. disclose a segmented upper electrode that is supplied RF power to each segment by individually controllable RF power supplies, thus disclosing an RF power supply/control scheme that operates by a different principle of operation. For example, the feedback loop in the upper capacitive network segmented electrode Dible et al. is hardwired; i.e., operates by sensing current through the variable capacitors to automatically adjusting the variable capacitors by a feedback loop between the current sensors and the variable capacitors to control the percentage of power sent to the electrodes (col 6, lines 13-24).

Thus, any attempted modification of Dible et al. by Liu et al. is impermissible as a matter of law in that such modification would change the principle of operation of the method and apparatus of Dible et al. (RF power to segments of upper electrode controlled by a hardwired current sensor feedback loop to the variable capacitors) and make the method and apparatus of Dible et al. unsuitable for its intended purpose and operation (automatically controlling percentage of RF power from a single power supply to segments of upper electrode by a hardwired current sensor feedback loop to the variable capacitors).

Moreover, such modification, even if permissible or possible

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(note Examiner has not explained how sensors monitoring an etch rate in the apparatus of Liu et al. and provided to a controller and then to individual RF power supplies could be incorporated into the hardwired current sensor/variable capacitor feedback loop of Liu) **would not produce Applicants invention**, including the fact that Applicants segmented electrode provided by RF power through a matching network also comprises an ESC and does not include a hardwired current sensor/variable capacitor feedback loop.

Examiner ignores the **principle of law** that any modification of Dible et al. **must not change the principle of operation of Dible et al or make it unsuitable for its intended purpose.**

"If the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims prima facie obvious." In *re Ratti*, 270 F.2d 810, 123, USPQ 349 (CCPA 1959).

"If proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification." In *re Gordon*, 733 F.2d 900, 221 USPQ 1125 (Fed.

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Cir. 1984).

Examiner ignores the fact that any modification of Dible et al. with the apparatus and method of Liu et al. **does not produce Applicants invention.**

"**First**, there must be some **suggestion or motivation**, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. **Second**, there must be a **reasonable expectation of success**. **Finally**, the prior art reference (or references when combined) **must teach or suggest all the claim limitations**. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure." *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

2. Claims 1-2, 4, 7, 9, 21-22, 24-28, and 31-38 stand rejected under 35 USC 103(a) as being unpatentable over Dible et al. in view of Liu et al., above, and further in view of Strang (US 6,642,661).

Applicants reiterate the comments made above with respect to Dible et al. and Liu et al.

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The further fact that Strang discloses a dual frequency generation system where both an **RF power** and a **portion of an RF bias power** (at different frequencies) is supplied to a **segmented upper electrode overlying an unsegmented (single) wafer electrode** which is also supplied with another portion of the RF bias power, and **where an active capacitor network is not present** as in Dible et al., and where Liu et al. teach a dual frequency system where a **high frequency and a low frequency signal are combined and then supplied to both upper and lower electrodes through individual RF Power supplies** (see col 1, lines 16-26) (i.e., operates by a **different principle of operation** than either Dibble et al. or Strang) does not further help Examiner in producing Applicants invention.

Note Examiner does not explain how (or why such modification would be desirable even if possible) a dual frequency system could be operably incorporated into the device of Dible et al., who discloses **alternate embodiments** of an upper segmented electrode powered by a **single RF power supply** through an **active capacitive network** with a hardwired current sensor/variable capacitor feedback loop) and a lower segmented electrode/bipolar ESC powered by a single RF power supply through a passive network including a passive RF power splitter.

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For example modifying Dible with the dual frequency network of Strang **must** also include the operation of the dual frequency power supply network of Strang **where both an RF bias power and an RF power is supplied to an overlying segmented electrode and a bias RF power to a single electrode supporting a wafer.** Such modification would change the principle of operation of Dible et al. making the apparatus of Dible **unsuitable for its intended operation, and still not produce Applicants invention.**

Thus, further modification of Dible et al. with the dual frequency system of Strang **would further make inoperable the device and method of Dible et al. and still not produce Applicants invention.**

"First, there must be some **suggestion or motivation,** either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. **Second,** there must be a **reasonable expectation of success.** **Finally,** the prior art reference (or references when combined) **must teach or suggest all the claim limitations.** The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's

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disclosure." *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

"The mere fact that a worker in the art could rearrange the parts of the reference device to meet the terms of the claims on appeal is not by itself sufficient to support a finding of obviousness. The prior art must provide a motivation or reason for the worker in the art, without the benefit of appellant's specification, to make the necessary changes in the reference device." *Ex parte Chicago Rawhide Mfg. Co.*, 223 USPQ 351, 353 (Bd. Pat. App. & Inter. 1984).

Examiners Arguments

Examiner erroneously argues that "even though in Liu et al., upper electrodes are segmented, this teaching properly applies to Dible et al. since the effect is the same. That is why in Dibble et al. there is no significance given to which electrode, upper or lower is segmented".

Examiner is clearly mistaken; Rather, Dible et al. disclose an **active capacitive network** that provides power to an upper segmented electrode and disclose a **passive network that is provided RF power by a RF power splitter as a lower electrode**

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that further functions as a bipolar ESC, whereas Liu et al. disclose a segmented upper electrode that is supplied RF power to each segment by individually controllable RF power supplies, thus disclosing an RF power supply/control scheme that operates by a different principle of operation. For example, the feedback loop in the upper capacitive network segmented electrode Dible et al. is hardwired; i.e., operates by sensing current through the variable capacitors to automatically adjusting the variable capacitors by a feedback loop between the current sensors and the variable capacitors to control the percentage of power sent to the electrodes (col 6, lines 13-24).

In contrast, Liu et al. disclose optically monitoring of etch species as well as an integrated power spectrum and feeding the information to a controller which controls RF power to the upper segmented electrode by separately controlling individual RF power supplies which separately power the segments of the upper electrode.

Thus, any attempted modification of Dible et al. by Liu et al. is impermissible as a matter of law (as well as inoperable) in that such modification would change the principle of operation of the method and apparatus of Dible et al. (RF power to segments of upper electrode controlled by a hardwired current sensor

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feedback loop to the variable capacitors) and make the method and apparatus of Dibble et al. unsuitable for its intended purpose and operation (automatically controlling percentage of RF power from a single power supply to segments of upper electrode by a hardwired current sensor feedback loop to the variable capacitors).

Moreover, Examiner is mistaken that Dible et al. disclose a **lower segmented electrode** that is supplied power by a **capacitive active network with a hardwired current sensing feed back loop where the lower electrode is also an ESC**, (rather Dible disclose that where the ESC comprises the segmented electrode that a passive RF network including a passive RF power splitter supplies power to the individual electrode segments). Thus, any modification of Dible by Liu et al. (even if possible without destroying the principle of operation of the apparatus of Dible et al.) **would still not produce Applicants invention.**

As such, further modification of Dible et al. by including the dual frequency power scheme of Stang would further make inoperable the method and apparatus of Dible et al. as inoperably and impermissibly modified by Liu et al., and **would still not produce Applicants invention.**

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Conclusion

The cited references, individually or in combination, fail to produce or suggest Applicants invention and are therefore insufficient to make out a *prima facie* case of obviousness.

The claims have been further amended to further clarify Applicants' invention to define over the prior art and to overcome Examiners rejections. A favorable reconsideration of Applicants' claims is respectfully requested.

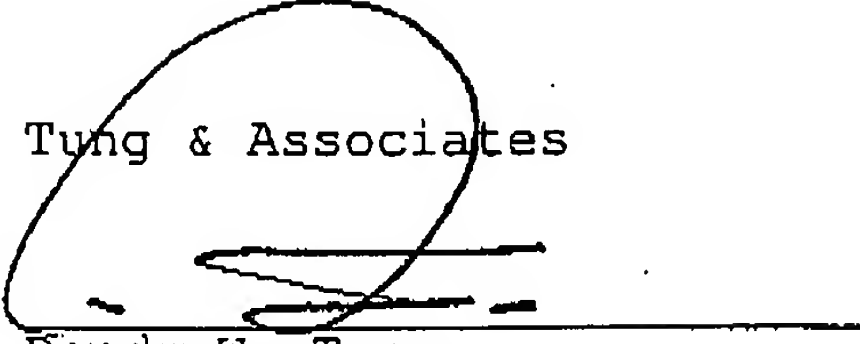
Based on the foregoing, Applicants respectfully submit that the Claims are now in condition for allowance. Such favorable action by the Examiner at an early date is respectfully solicited.

In the event that the present invention as claimed is not in condition for allowance for any reason, the Examiner is respectfully invited to call the Applicants' representative at his Bloomfield Hills, Michigan office at (248) 540-4040 such that necessary action may be taken to place the application in a condition for allowance.

Respectfully submitted,

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